

Geologic Tour of Mack Ridge

Faults & Folds

The curved ridges and sprawling benches separated by sheer cliffs of water carved Entrada Sandstone provide amazing hiking and biking opportunities. This landscape has been formed through millions of years of thrust faulting resulting in the compression and uplifting of the Uncompahgre Plateau.



Faulting and water erosion have worked in tandem to shape this land. In Mack Ridge, this is noticeable before even entering the area. From I-70 one can see a series of triangular blocks in a line that mimic a row of shark teeth. These formations, called hogbacks, form when uplifted and tilted beds of rock are worn away on the sides by water. The hogbacks here are composed of Cretaceous sandstone (65-99 million years old), the youngest rocks of the Uncompahgre Plateau. The southern slopes and benches of Mack

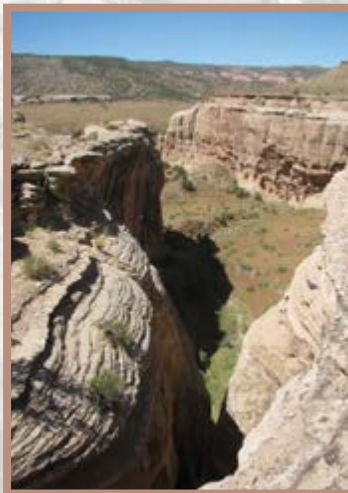


View facing south across the Colorado River. The folded rock is due to two thrust faults.

Ridge reveal progressive rock layers (up to 220 million years old). These rocks are thrust faulted in much the same way as the hogbacks on the northern flank. Variations in rock type result in quite different physical expressions. Here, much of the rock is folded rather than broken and offset from faulting. The erosive power of rainwater has carved deep canyons south of the Colorado River. These canyons help to reveal the deformed and altered beds of underlying rock that would otherwise be hidden.

Geological Treasures Underfoot

The steep and colorful slopes in this region of the NCA are composed of the Morrison Formation that is divided into three units. The youngest, upper unit is the Brushy Basin Member, famous for extensive



and diverse Jurassic (approx. 150 million years old) dinosaur and plant fossils. This unit consists of mudstone with a high amount of bentonite clay. This clay, formed from volcanic ash, settled in ancient swamps and streams and formed the Brushy Basin. The middle Morrison unit is known as the Salt Wash Member.

This unit is mostly composed of sandstone deposited by Jurassic rivers and is host to large uranium deposits. The uranium is said to originate from the volcanic ash up above in the Brushy Basin Member and carried down to the Salt Wash Member by rain water. The lower member is the Tidwell, a shallow marine deposit that is the only member of the Morrison to contain limestone.



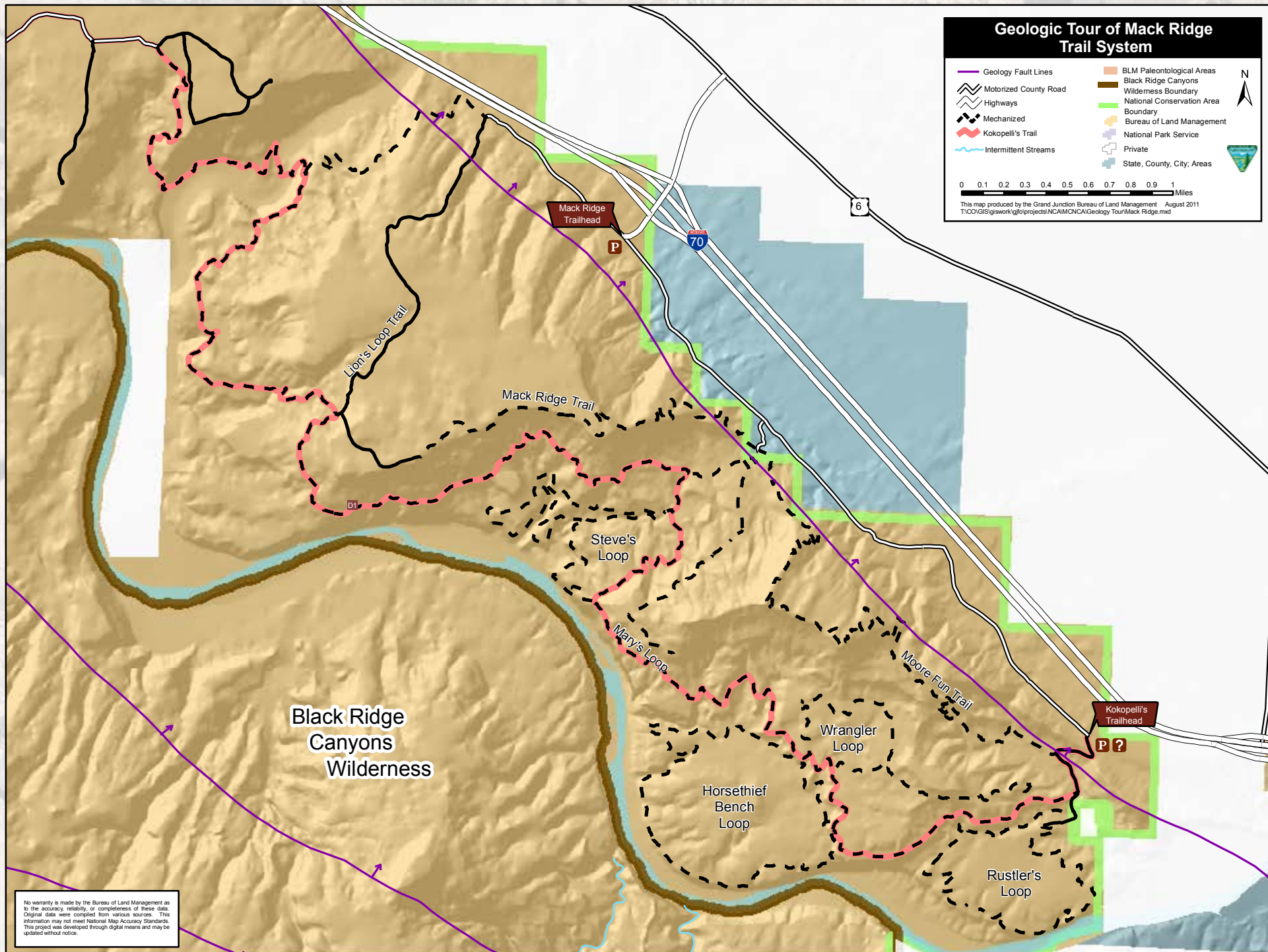
An all encompassing view of the Morrison Formation displaying all three Members.

Bureau of Land Management

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